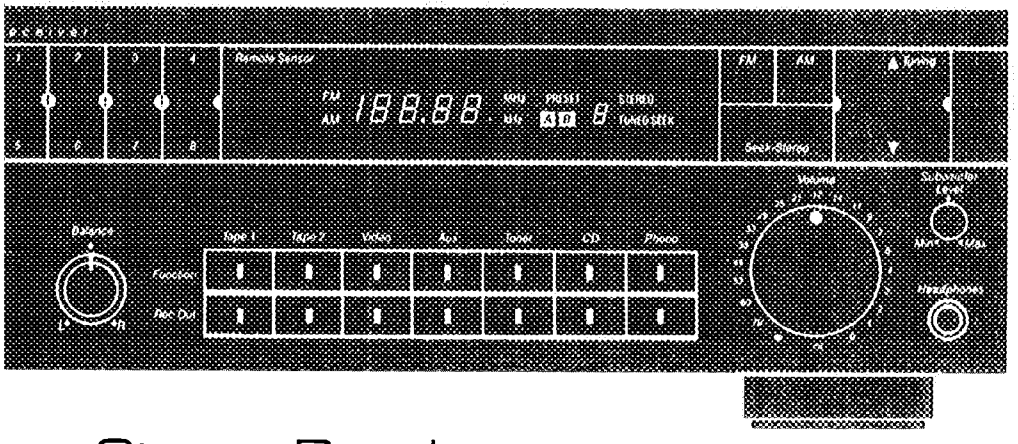
HK3500



harman/kardon

Stereo Receiver

OWNER'S MANUAL

GENERAL INSTRUCTIONS

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION: TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

ATTENTION: POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR, UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

Use 120-volt AC only.

Connecting the unit to an outlet supplying a higher voltage may create a fire hazard.

Handle the Power Cord Gently.

- To disconnect the plug from the AC outlet, pull on the plug itself, not on the cord.
- Disconnect the plug from the AC outlet whenever the unit is to be left unused for an extended period of time.
- Do not place furniture or other heavy objects on the cord, and avoid dropping heavy objects on it. Also do not make a knot in the cord.

Place the unit on a firm and level surface.

Avoid installing it:

- In moist or humid places;
- Close to heating equipment or in places exposed to direct sunlight;
- In a direct draft from an air conditioner or in other very cold locations;
- In places subject to excessive vibration or dust;
- In poorly ventilated places.

Moving the Unit.

Before moving the unit, be sure to unplug the power cord from the AC outlet and disconnect all wires to antennas and to other stereo components.

Do Not Open the Cabinet.

Do not attempt to service this unit. Tampering with internal components can cause fire or shock, and may void your guarantee.

If water or small objects enter the unit, unplug the power cord immediately and consult an authorized Harman Kardon service center. Using the unit under such conditions may cause a fire or shock hazard.

Cleaning.

Remove dust by wiping the unit with a soft, dry cloth. If necessary, use a soft cloth lightly dampened with mild soapy water; then wipe with a dry cloth. Never use benzine, thinner, alcohol or other volatile agents, and avoid spraying insecticides near the unit.

HARMAN KARDON HK3500 STEREO RECEIVER

Thank you for choosing a Harman Kardon receiver.

And congratulations. Your new unit is an exceptionally well-engineered product that will give you years of superb performance.

Among its special features are:

■ High Instantaneous Current Capability

The amplifier in the HK3500 reacts rapidly to musical transients, providing the instantaneous current necessary to precisely drive and control nearly any loudspeaker system.

■ Ultrawide Bandwidth

The circuitry is designed to deliver extended frequency response, while keeping phase shift well outside the audible spectrum. The result is stereo imaging and clarity with remarkably accurate spatial positioning of vocals and musical instruments.

■ Low Negative Feedback

Conventional designs rely heavily on negative feedback to reduce Total Harmonic Distortion. This results, however, in excessive Transient Intermodulation Distortion, audible in the harsh, grating quality of the sound. Harman Kardon keeps negative feedback low for smoother, clearer reproduction of complex musical sounds, such as those of stringed instruments.

■ Discrete Circuitry

For maximum design flexibility and highest possible performance, the circuitry has been designed using discrete electronic components, not off-the-shelf integrated circuits.

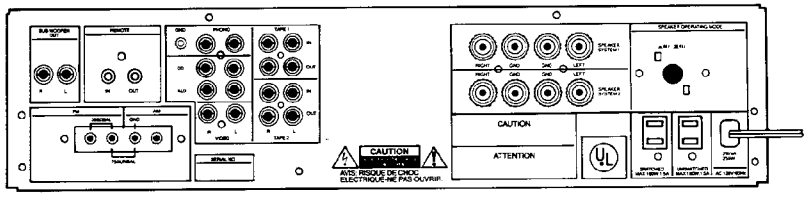
■ Sophisticated Electronic Protection Circuitry

Harman Kardon's unique protection circuitry guards the amplifier from short-circuited or damaged speakers and wires, without impairing sound quality by the use of current limiting or output relays.

■ Automatic Tuner Switching

When not in use, the tuner circuitry is automatically turned off, eliminating any electronic interference and assuring optimal performance of amplifier circuitry.

INSTALLATION



Packaging
Save all packing material. It is essential for shipping should you move, or in the event the unit ever needs repair.

Placement
Unit may be placed on top of or beneath other stereo components, so long as its placement meets the cooling requirements of the component beneath it.

Connecting Other Components
1. Make sure receiver and other components are turned off.
2. Connect each component's Output jacks to the corresponding Input jacks on the back of your receiver. Use the white, black or gray plugs to connect Left channel jacks; use the red plugs for Right jacks.

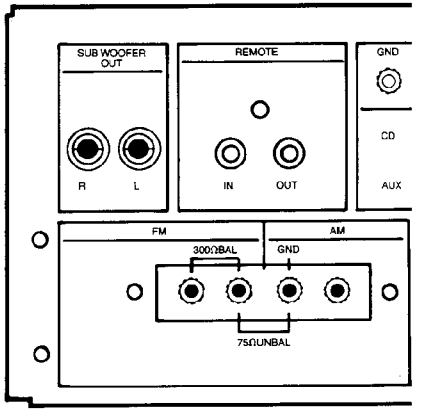
NOTE:

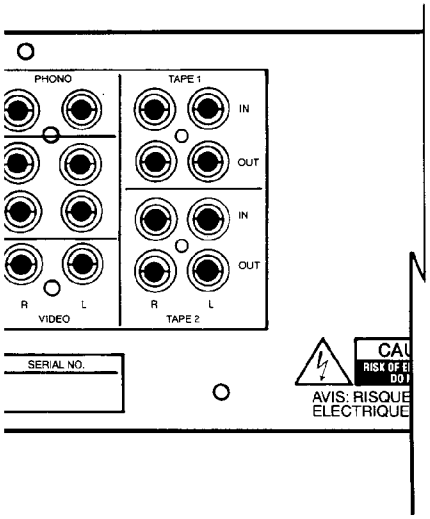
1. When connecting a turntable, also connect the ground wire from the turntable to the terminal marked "GND" next to the Phono jacks.
2. The receiver is designed for use with turntables using moving magnet cartridges. If you are using a moving coil cartridge, place a step-up transformer between the turntable and receiver.
3. When connecting tape decks, also connect the "Out" jacks on the receiver to the "Input" jacks on the tape deck.
4. To connect an equalizer and/or other external signal processing components, use the receiver's Tape 1 or Tape 2 jacks. Then connect your tape deck to the Tape Monitor jacks provided on the last outboard component. To use the signal processing components, press the appropriate function button (Tape 1 or 2) on the front of your receiver. To use your cassette deck, press the Tape Monitor buttons on the signal processing components.
5. The Video and Aux jacks may be used to connect VCR or TV audio lines, a DAT recorder, or any other desired line level source.

Connecting Antennas
Choosing an FM antenna.

Select the antenna that best meets your needs:

1. An indoor dipole antenna is supplied with your receiver. This will work well if you are located in a strong signal area.
2. Other indoor antennas are available which may improve reception by offering greater positioning flexibility.
3. If reception is unsatisfactory using indoor antennas, an outdoor antenna should be installed.
4. Alternatively, you may connect to an FM cable antenna, if available.





Connecting the FM antenna.

Connect the leads to the screw-down terminals marked "FM 300ΩBAL" on the back of the receiver.

If coaxial cable is used:

(a) Connect the cable center wire to the FM screw terminal, and connect the shield to the "GND" terminal, as indicated by the lines marked "75ΩUNBAL".

(b) Or, connect a 75-300Ω converter to the coaxial cable. Then attach the leads from the converter to the terminals marked "300ΩBAL".

Connecting an AM Antenna.

Your receiver comes with an AM loop antenna which provides good reception in most locations. For best results, place this antenna away from the unit and away from contact with any metal object.

In areas where AM signals are weak, an outdoor AM antenna may improve sound quality.

Connect the AM antenna leads to the screw-down terminals marked "AM" on the back of the receiver.

Subwoofer Out

Connect these jacks, if desired, to a powered subwoofer, or a power amplifier driving a subwoofer. This output may also be used for surround-sound equipment or any external component requiring a line level input.

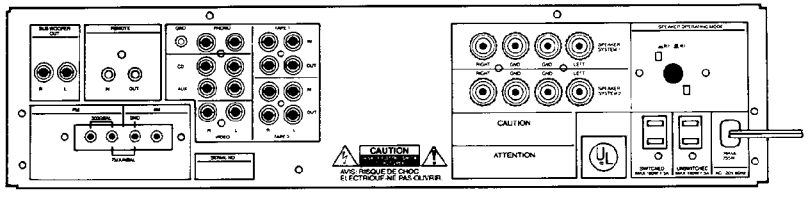
Wired Remote Control

To control your receiver with an external infrared remote sensor, connect the wire from the remote sensor to the "Remote In" jack on the back panel. Or, if you have a stereo component with a built-in infrared remote sensor and a "Remote Output" jack, it may be possible to connect this jack to the "Remote In" jack of your receiver. All Harman Kardon products with "Remote In" and "Remote Out" jacks are compatible with one another, except for the Citation 22, 24 and 25. Other manufacturers' remote sensors may not be compatible, but it will not hurt to experiment.

A second wire may be used to connect your receiver's "Remote Out" jack to the "Remote Input" of another stereo component. Continue this process to include additional components (if compatible).

To control your receiver, you may use the remote control supplied with the HK3500. Or you may use a universal remote control unit, such as Harman Kardon's Masterworks™, which can also control other components, such as TVs, VCRs, tape decks and CD players. Masterworks is available from your Harman Kardon dealer.

INSTALLATION



AC Power

Plug the cord into a polarized wall socket, or polarized extension cord.

AC Convenience Receptacles

Other stereo components may be plugged into the back of your receiver.

1. If a component is plugged into the "Switched" receptacle, power will be supplied to that component only when your receiver is turned on.
2. If a component is plugged into the "Unswitched" receptacle, power will be supplied whether your receiver is on or off.

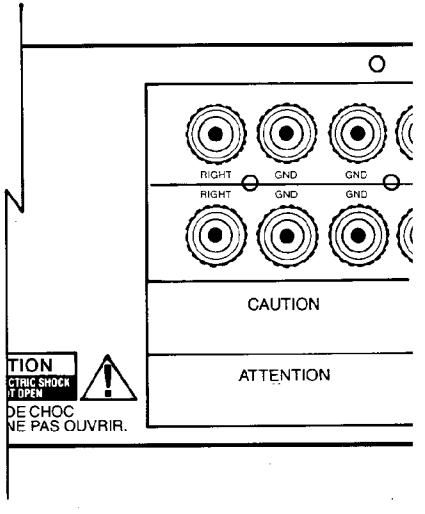
NOTE: Do not connect any component that requires more than 180 watts of power. Check the owner's manual or the back of the component to find its power requirement.

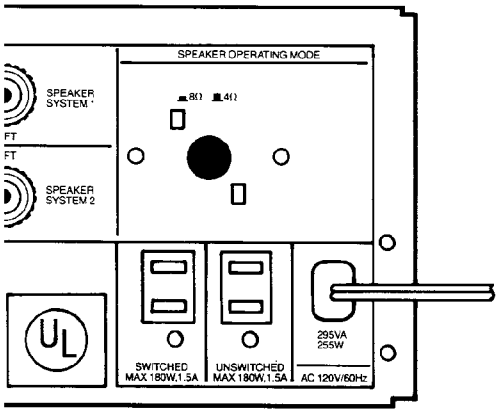
Connecting Speakers

1. For best performance, use high quality speaker cables. However, ordinary copper wire can be used if the gauge meets the following requirements:

Wire Length	Gauge
Up to 8 feet	18 AWG
Up to 12 feet	16 AWG
Up to 20 feet	14 AWG
Over 20 feet	10-12 AWG custom speaker cable

2. Avoid coiling excess wire with or near line level hook-up cords.
3. Note the difference between the two conductors in each cable: different colored insulation, ridged insulation, or colored yarn. Connect the right-hand speaker to the receiver, being careful to connect the positive terminal on the speaker to the terminal marked "Right" on the receiver, and the negative or ground terminal on the speaker to the corresponding "GND" terminal on the receiver.
4. Connect terminals on the left-hand speaker to the "Left" and corresponding "GND" terminals on the receiver, again being careful to maintain correct polarity.
5. If you are using a second set of speakers, connect them in the same way to the terminals marked "Speaker System 2."





IMPORTANT: When connecting two pairs of speakers, determine the impedance of each pair by looking on the back of the speakers, or in your owner's manual, or by contacting your dealer or manufacturer. Then refer to the following chart to see if both sets may be played simultaneously.

If impedance of the two pairs is:	**Can both pairs be played simultaneously?**
8Ω/8Ω	YES
8Ω/6Ω	NO
8Ω/4Ω	NO
6Ω/6Ω	NO
6Ω/4Ω	NO
4Ω/4Ω	NO

WARNING: Do not play both sets of speakers simultaneously except as recommended above. Receiver may overheat.

Setting the Speaker Operating Mode

1. Determine the impedance of your speakers by looking on the back of the speakers or in your owner's manual, or by contacting your dealer or the manufacturer.
2. Be sure Power switch is turned off.
3. Locate the switch marked "4Ω/8Ω" on the back of the receiver.
   - *If you are connecting only one set of speakers,* and their impedance is 8Ω, set the switch to 8Ω.
   - If your speaker's impedance is less than 8Ω, or if you are connecting two sets of speakers, regardless of their impedance, set the switch to 4Ω.

NOTE: If you change or add speakers, be sure to reset the switch accordingly.

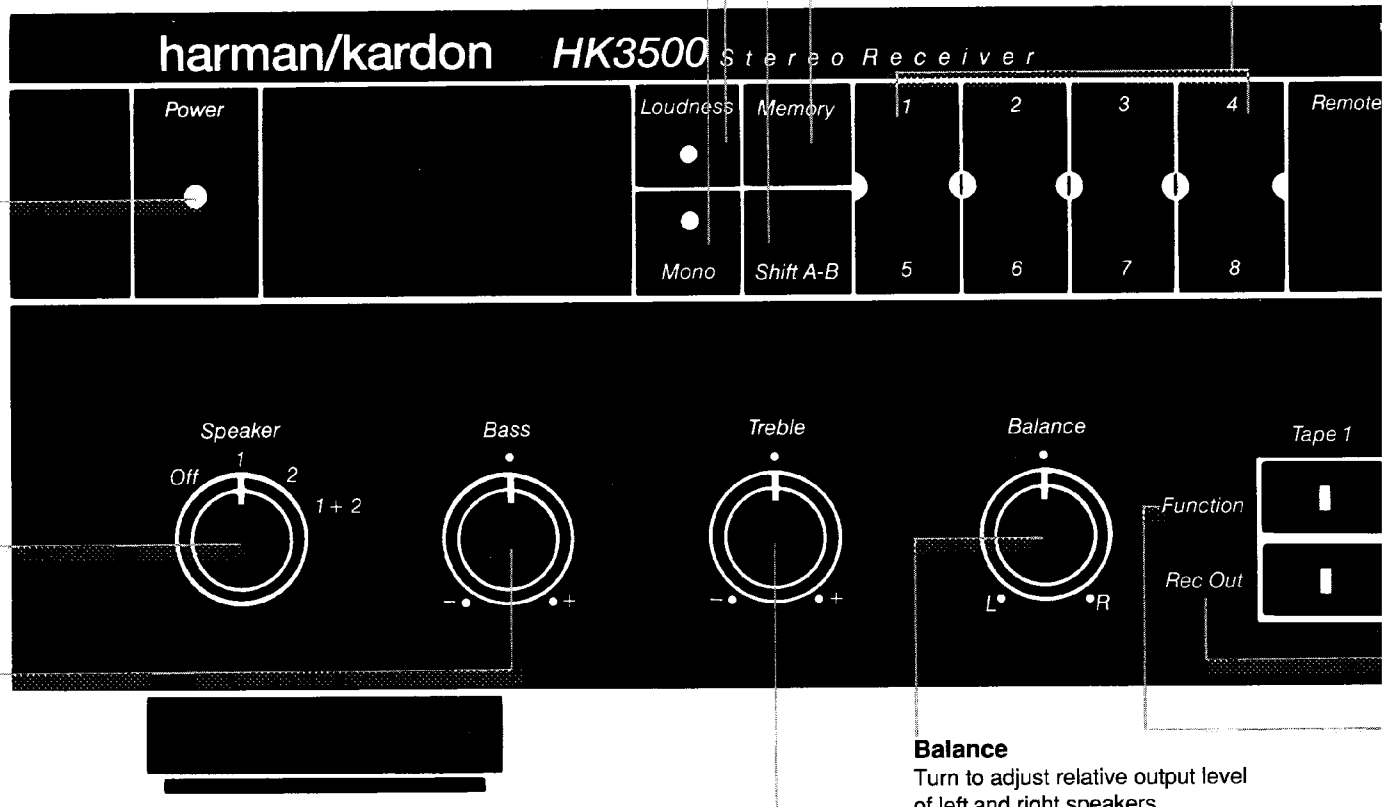
CONTROLS and DISPLAYS

Loudness
Press to improve sound quality when listening to your system at low volume.

Shift A-B
Allows you to access 16 pre-selected stations using the 8 preset buttons.

Mono
Press to hear input from any source in mono.

Memory
Press to set a new preset station in memory.



Power
Press to turn the unit on and off. (For use with Remote Control, see Page 10.)

Speaker
Turn to select either of two sets of speakers, or both, or neither (headphone output only).

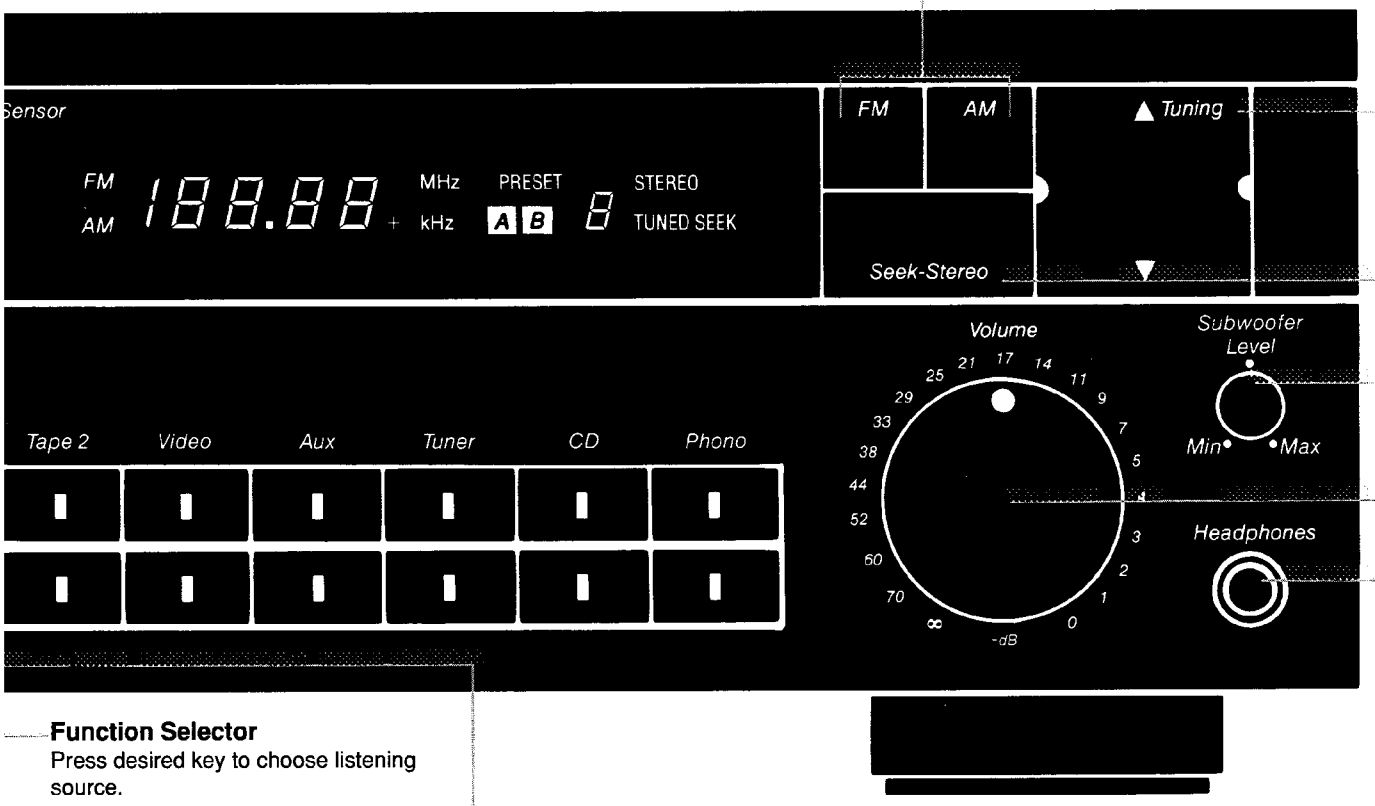
Bass
Turn to increase or decrease the proportion of low frequency sound.

Balance
Turn to adjust relative output level of left and right speakers.

Treble
Turn to increase or decrease the proportion of high frequency sound.

Preset Buttons
Press to access pre-selected stations.

FM/AM
Press to select FM or AM reception.



Tuning
Press ▲ to tune to stations with higher frequencies; press ▼ for lower frequencies.

Seek-Stereo
Press to select Seek tuning in stereo, or manual tuning in mono.

Subwoofer Level
Turn to increase or decrease the subwoofer output level relative to the speakers connected to the HK3500.

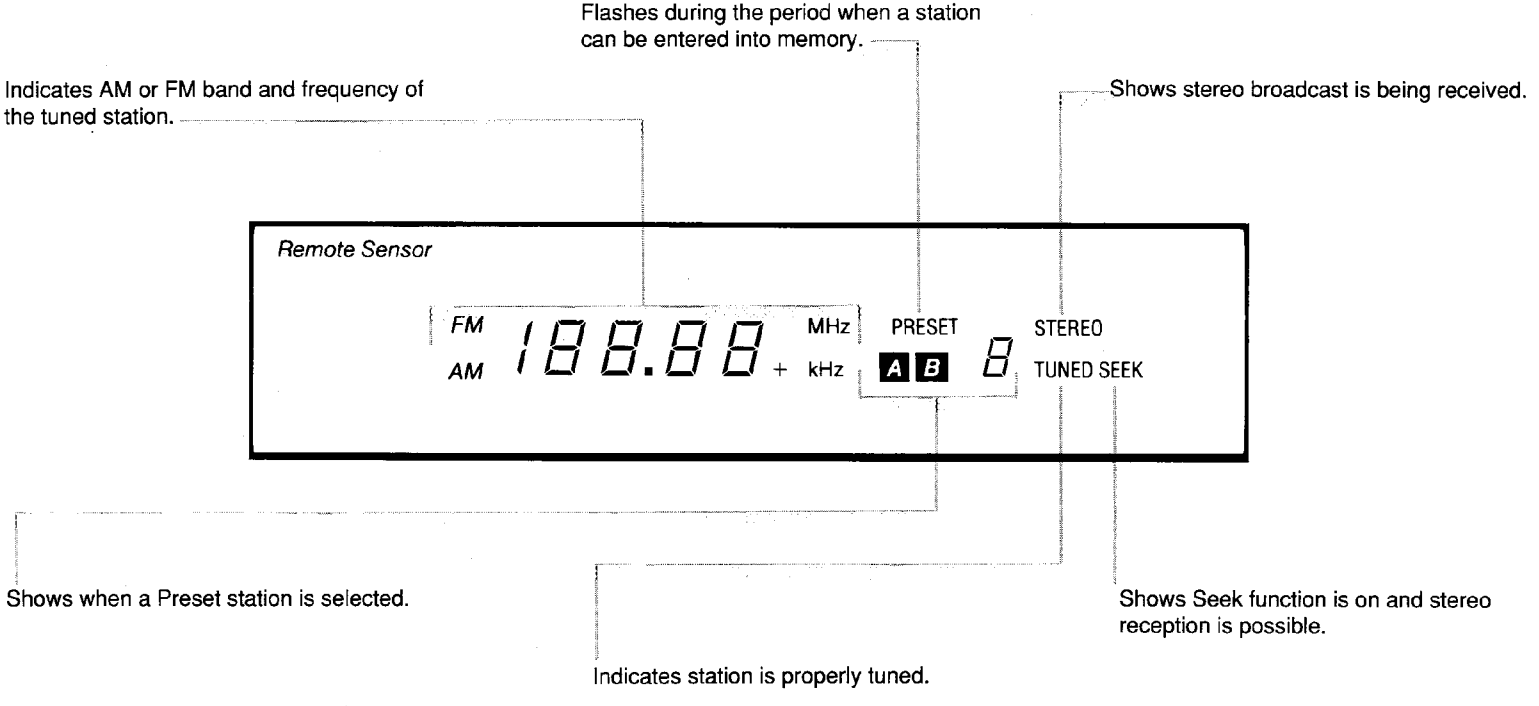
Volume
Turn to raise or lower output volume.

Headphone Jack
Plug in headphones if desired. (With Speaker switch in Off position, output is supplied only to headphones.)

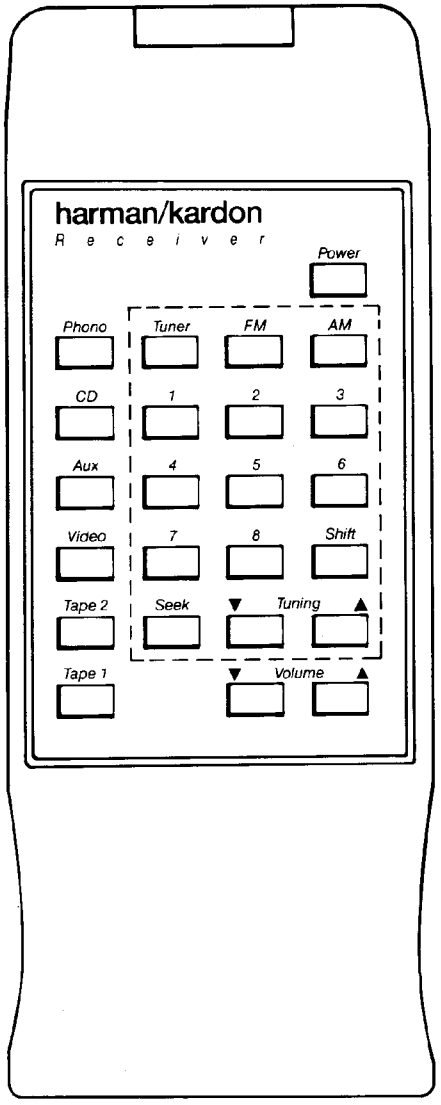
Function Selector
Press desired key to choose listening source.

Record Selector
Press desired key to choose source for tape recording.

DISPLAYS


Flashes during the period when a station can be entered into memory.
Indicates AM or FM band and frequency of the tuned station.
Shows stereo broadcast is being received.
Remote Sensor
FM
AM
188.88
MHz
kHz
PRESET
A B
8
STEREO
TUNED SEEK
Shows when a Preset station is selected.
Indicates station is properly tuned.
Shows Seek function is on and stereo reception is possible.

REMOTE CONTROL



Independent Remote Control

The keys on the remote control unit function the same as the corresponding buttons on the receiver itself, except for the power switch.

The power switch on the receiver turns the unit On and Off. The switch on the remote control switches the receiver from On (green LED illuminates on receiver power switch) to Standby (amber LED), as follows.

When power is On, pressing the power switch on the remote control puts the receiver in Standby mode. From this mode, the receiver can be turned back on from the remote control.

When power is Off, the receiver can be turned on only from the unit itself, not from the remote control.

Operating Conditions

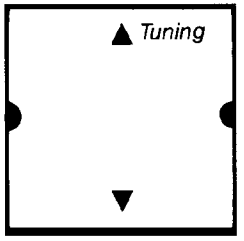
The control unit operates effectively within a distance of 7 meters (23 feet) and an angle of 30° from the receiver. Using the control near fluorescent lights may shorten this range, as will any dust or dirt that accumulates on the front of the remote control, or the "Remote Sensor" area of the receiver. Also avoid blocking the line of sight between receiver and remote.

The control unit is powered by two AA batteries, included with your receiver. When you replace weak batteries, replace both at the same time. When the remote is to be unused for an extended period, remove the batteries to prevent damage from corrosion.

OPERATING INSTRUCTIONS

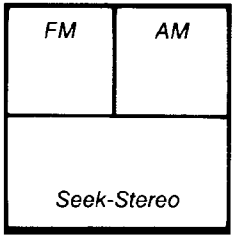
Listening to your turntable (phono), CD player, tape deck, or other component sound source.

1. Turn Volume knob to minimum level and press the Power switch to turn on the Receiver.
2. Select Speaker setting to play speakers 1, 2, both or neither (for headphone use).
3. Press the Function Selector button corresponding to the component you wish to hear.
4. Begin playing the desired component.
5. Adjust the Volume to the desired level.
6. When listening at low volume, you may wish to press in the Loudness button. This boosts low frequencies to improve the apparent balance of low, mid and high frequencies.
7. Adjust Bass, Treble and Balance knobs as desired.



Listening to AM/FM broadcasts.

1. Turn Volume knob to minimum level and press the Power switch to turn on the Receiver.
2. Select Speaker setting to play speakers 1, 2, both or neither (for headphone use).
3. Press the Function Selector button marked "Tuner".
4. Select AM or FM by pressing the corresponding button.
5. Use the ▲ and ▼ buttons to tune to desired frequency. Or use the station Preset buttons as described below.
6. When tuning FM stations:
   - Begin with the Seek-Stereo function on. ("Seek" will light on the Display Panel.) In this mode, pressing ▲ (or ▼) will tune your unit to the next higher (or lower) strong station.
   - To tune to stations too weak to be received in Seek-Stereo mode, turn Seek-Stereo off. Then use the ▲ and ▼ buttons to reach the desired frequency.



NOTE: With Seek-Stereo off, all broadcasts are received in mono. (This eliminates the excessive noise that results when weak stations are received in stereo.) When you tune to a new, stronger station, be sure to turn Seek-Stereo back on.

7. Adjust the Volume to the desired level.
8. When listening at low volume, press in the Loudness button. This boosts low frequencies to improve sound quality.
9. Adjust Bass, Treble and Balance knobs as desired.

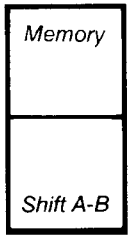
Using the Preset Buttons

Your receiver allows you to store 16 station settings and quickly access them, using the 8 Preset buttons along with the Shift A-B button. The Preset stations are designated by the letter A or B, followed by a number from 1 to 8. Any designation may be used for any AM or FM station, in whatever combination you choose.

To enter a station in memory:

1. Tune to the desired station.
2. Be sure Seek-Stereo setting is the one desired*.
3. Press the Shift A-B button to display the desired letter.
4. Press the Memory button. ("Preset" will flash for about 8 seconds.)
5. With "Preset" flashing, press the desired numbered Preset button.

*NOTE: When a station is set in memory, the Seek-Stereo setting is also entered. Subsequently, each time a station is recalled using a Preset button, the tuner automatically switches to the original Seek-Stereo setting for that station.



To change a preset station:

Simply enter the new station. The old station is automatically erased.

To access a preset station:

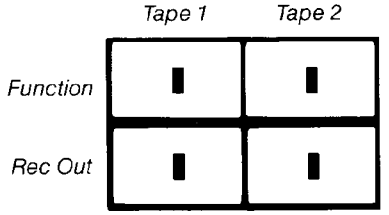
Press the Shift A-B button to display the correct letter. Then press the desired numbered Preset button.

NOTE: Preset stations are stored indefinitely while the unit is connected to a live AC source, and for approximately 1 week when the unit is unplugged.

Making a Recording

Press the "Rec Out" button corresponding to the component you wish to record from. Recording may be made on tape deck 1 or 2, or both simultaneously. You may also record from either tape deck to the other.

NOTE: By selecting different sources for Function and Rec Out, you may listen to one stereo component while recording from another.



TROUBLESHOOTING

This unit is designed for trouble-free operation; most problems users encounter are due to operating errors. So if you have a problem, first check this list for a possible solution. If the problem persists, consult your authorized Harman Kardon service center.

If the problem is:	Make sure that:
No lights illuminate when Power switch is pressed.	■ The unit is plugged into a live outlet.
No sound is heard.	■ Speaker selector is turned to the desired speakers. ■ Correct function button has been pressed. ■ Volume is turned up. ■ Speaker wires are connected properly. ■ Hook-up wires to source component are connected properly.
Tuner sound has a large amount of interference. OR The "Stereo" display is not fully illuminated. OR Tuner sound distorts and/or volume level is too low.	■ The antenna is properly connected. ■ The antenna is properly located. ■ The antenna is set in the proper direction. ■ The antenna is adequate to receive the desired station.
Intermittent or continuous buzzing or hissing.	■ The unit is away from fluorescent lights, TVs, motors and other electrical appliances.
Stations cannot be preset.	■ After pressing Memory button, the preset button is set while the "Preset" light is still flashing.
Phono sound is too faint, has hum, ringing, or "howl."	■ Turntable cartridge is moving magnet type, or step-up transformer is used. ■ Ground wire from turntable has been connected to ground terminal on receiver. ■ Cable from turntable is away from power cords and speaker cables. ■ Turntable is away from speakers. ■ Turntable is on stable surface.

SPECIFICATIONS

Amplifier Section		
Continuous Average Power Per Channel (FTC)	8 Ohms:	50 Watts @<0.09% THD
20Hz - 20kHz, Both Channels Driven	4 Ohms:	50 Watts @<0.3% THD
Dynamic Power (IHF, 1kHz tone burst)		
High Voltage/High Current Mode:	8 Ohms:	90 Watts
	4 Ohms:	120 Watts
	2 Ohms:	160 Watts
High Current Mode:	4 Ohms:	90 Watts
	2 Ohms:	120 Watts
High Instantaneous Current Capability (HCC):		±35 Amps
Negative Feedback:		26dB
Power Bandwidth @ half-rated output, 8Ω:		<10Hz - 100 kHz
Frequency Response @ 1W (+0/-3dB):		0.5Hz - 150kHz
Slew Rate:*		100V/μ sec
Rise Time:		1.8μ sec
Transient Intermodulation Distortion (TIM):		Unmeasurable
Damping Factor:		60
Signal-to-Noise Ratio (ref. rated power	Phono (MM):	78dB
output, A-Wtd.)	Video/CD:	98dB
Input Sensitivity/Impedance	Phono (MM):	2.2mV/47kΩ,125pf
	Video/CD/Tape:	135mV/22kΩ
Subwoofer Output Level/Load:		2.0V/10kΩ
Phono-Overload, MM:		120mV
RIAA EQ Accuracy 20Hz-20kHz:		±0.5dB
Tone Control Range, Bass @ 50Hz/Treble @ 10kHz:		±10dB/±10dB
Loudness Contour @ -40dB, 50Hz:		+10dB

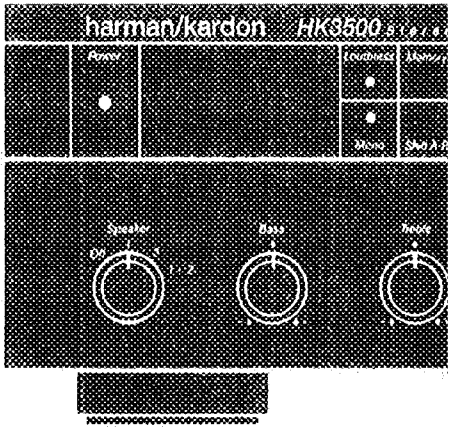
* Measured without input anti-slewing and output isolation networks.

Tuner Section: FM	
Usable Sensitivity Mono (dBf):	11.2
50dB Quieting Sensitivity, stereo (dBf):	37.2
Signal-to-Noise Ratio @ 65dBf, mono/stereo:	80dB/73dB
Capture Ratio:	1.5dB
Selectivity, Adjacent/Alternate Channel:	10dB/75dB
IF Rejection:	90dB
AM Rejection @ 45dBf:	55dB
Stereo Separation @ 1kHz, 65dBf:	50dB
THD @ 1kHz, 65dBf; mono/stereo (%):	0.1/0.12

Tuner Section: AM	
Sensitivity, Ext. Antenna:	15μV
Alternate Channel Selectivity:	60dB
Image Rejection:	40dB
IF Rejection:	60dB

Dimensions:	17-3/8 × 5 × 13-3/4"
(Width x Height x Depth)	443 × 126 × 349mm
Weight:	16.5lbs./7.5kg

All features and specifications are subject to change without notice.



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